

REMARKS

Claims 1-5 and 7-29 are pending herein.

By this Amendment, claims 1 and 29 have been amended to more fully distinguish the invention of the claims over the teachings of the prior art references cited against these claims. Regarding claim 1, claim 6 has been incorporated therein and claim 6 has been canceled. Claims 2 and 16 have been amended to correct typographical errors. Claim 7 is amended to revise its dependency in view of the cancellation of claim 6.

No new matter is added by this Amendment. Support for the amendments to the claims is found in the original specification, original claims and Figures. In particular, support for the language added to claim 1 is found in original claim 6. Support for the language added to claim 29 is found at, for example, page 16 of the specification.

I. Objections

A. Specification

The specification was objected to as allegedly failing to provide proper antecedent basis for claimed subject matter. Specifically, the Patent Office alleged that the specification fails to provide adequate written description detailing the means for moving the point from the reflective surface to within the light-emitting layer. In particular, the Patent Office alleged that the specification fails to describe means for reflecting the light from the point within the light emitting layer.

Applicants submit that the specification adequately describes means for reflecting the light from the point within the light emitting layer. For example, the specification states:

The specification of the "point existing in the interval from the semi-reflecting layer group side of the light emission means to the surface of the reflecting layer" is for the purpose of adjusting the position in the thickness direction where resonance conditions will be satisfied by the light emission means configuration. Here, the positional relationship in the thickness direction (light axis) is defined, and a plane that emits light or reflects light (in the case of a reflecting layer) is formed by the set of "points" that satisfy the

resonance conditions in the light emission means overall. Here, when the point existing in the interval from the end of the light emission means on the semi-reflecting layer group side to the reflecting layer is on the reflecting surface of the reflecting layer, the distance L between the reflecting surface on the light emission means side in the semi-reflecting layer of the plurality of semi-reflecting layers that reflects light of wavelength λ , in the light emission region wherein light of wavelength λ is output, and the point existing in the interval from the end of the semi-reflecting group side in the light emission means to the surface of the reflecting layer is adjusted so as to satisfy the relationship

Eq. 1

$$L = \sum d_i$$

$$\sum (n_i \cdot d_i) + m_1 \cdot (\Phi/2\pi) \cdot \lambda = m_2 \cdot \lambda/2$$

where n_i is the refractive index of the i 'th substance between the semi-reflecting layer and the light emitting surface, d_i is the thickness thereof, Φ is the phase shift occurring at the reflecting surface in the reflecting layer, and m_1 and m_2 are natural numbers.

See pages 6-7 of the specification. Applicants submit that at least the foregoing passage of the specification provides proper antecedent basis for the claimed subject matter.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

B. Drawings

The drawings were objected to under 37 CFR 1.83(a) for allegedly not showing every feature of the invention specified in the claims. Specifically, the Patent Office required that the point existing in an interval between the two reflective surfaces be shown or the feature canceled from the claims. To this end, Applicants amend Fig. 2 to label the point at which light is emitted which exists in an interval between two reflective surfaces that are shown.

Applicants submit the requirements of the Patent Office have been met.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

C. Claims

Claim 2 was objected to based on an informality. Specifically, the Patent Office alleged that "to of light" in line 4 of claim 2 should read "to light." To this end, Applicants amend claim 2 as suggested by the Patent Office.

Reconsideration and withdrawal of the objection are thus respectfully requested.

II. Claim Rejections under 35 U.S.C. §112

Claims 1, 6 and 16 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Specifically, the Patent Office alleged that (1) lines 19-26 of claim 1 are unclear as to what Applicants intended to claim; (2) with respect to claim 6, it is unclear how Applicants intended to create the point of claim 1 within the light-emitting layer; and (3) with respect to claim 16, there is insufficient antecedent basis for "said light emission point."

Applicants herein amend claim 1 to recite that the distance between the reflecting layer for light from the light emission means side of the semi-reflecting layer group that partially reflects light output from that light emission region and a point at which light is emitted, existing in an interval from an end surface of said light emission means on the semi-reflecting layer group side to a surface of said reflecting layer is adjusted so as to have an optical path length such that light of the wavelength output from that light emission region resonates. Applicants submit that claim 1 clearly defines the subject matter contained therein.

Applicants herein incorporate the subject matter of claim 6 into claim 1 such that claim 1 includes said point in the interval from the end surface of said light emission means on the semi-reflecting layer group side to the surface of said reflecting layer is a light emission point in said light emission means.

Applicants further submit that the point is defined, for example, at page 4 of the specification, as existing in the interval from the end of the light emission means on the semi-reflecting layer group side to the reflecting layer and is adjusted so that it becomes an optical path length at which light of the wavelength output from that light emission region resonates. The specification further states, for example, that light emitted or reflected is formed by the set of points. See page 6 of the specification.

Applicants thus submit that it is clear how the point of claim 1 is created within the light-emitting layer.

Applicants amend claim 16 to recite that a point where an electric field becomes maximized between electrodes in an organic electro-luminescence layer coincides with said point at which light is emitted. Applicants submit that there is sufficient antecedent basis for "said point at which light is emitted."

For the foregoing reasons, Applicants submit that amended claims 1 and 16 overcome the rejections made by the Patent Office. Reconsideration and withdrawal of the rejections are thus respectfully requested.

III. Claim Rejections under 35 U.S.C. §102(b)

Claims 1-4, 8, 9, 12-15, 17 and 19-28 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,554,911 (hereinafter "Nakayama"). This rejection is respectfully traversed.

Claim 1 is amended to include the allowable subject matter of prior dependent claim 6. Claims 4, 8, 9, 12-15, 17 and 19-28 all depend from claim 1. As such, this rejection is now moot.

Reconsideration and withdrawal of this rejection are respectfully requested.

IV. Claim Rejections under 35 U.S.C. §102(b)

Claim 29 was rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 5,949,187 (hereinafter "Xu"). This rejection is respectfully traversed.

Claim 29 recites an interference mirror comprising a plurality of interference reflecting layers, configured so that some light of mutually different wavelength can be reflected, positioned sequentially in the direction of the optical axis; and a plurality of gap adjacent layers, each of which has a different thickness with respect to one another, in the direction of the optical axis, positioned between said interference reflecting layers.

Fig. 1 of Xu, as referenced by the Examiner, shows spacers 25 and 27 (gap adjacent layers as alleged by the Patent Office). The optical lengths (L_1 and L_2) of the each of the spaces 25 and 27, respectively, appear to be the same in Fig. 1. Further, the optical lengths of each of the spaces is such that emitted light has a desired spectrum. See col. 4, lines 18-44 of Xu.

Nowhere does Xu teach or suggest a plurality of gap adjacent layers, each of which has a different thickness with respect to one another, in the direction of the optical axis, positioned between said interference reflecting layers, as recited in claim 29.

For at least the foregoing reason, Applicants respectfully submit that Xu fails to anticipate the subject matter of claim 29. Reconsideration and withdrawal of this rejection are thus respectfully requested.

V. Claim Rejections under 35 U.S.C. §103(a)

A. Nakayama

Claims 5, 10, 11 and 16 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Nakayama.

Claim 5 depends from claim 4 which depends from claim 1. Claim 10 depends from claim 9 which depends from claim 1. Claims 11 and 16 each depend directly from claim 1.

Even if one of ordinary skill in the art would have found Nakayama to teach the subject matter of claims 5, 10, 11 and/or 16, the presently claimed invention still would not have been achieved. Specifically, as discussed above, nowhere does Nakayama teach or suggest the subject matter of claim 1 from which each of claims 5, 10, 11 and 16 depend.

Accordingly, Applicants respectfully submit that Nakayama would not have led one of ordinary skill in the art to the invention of claim 1 or any of depending claims 5, 10, 11 and 16. Reconsideration and withdrawal of this rejection are thus respectfully requested.

B. Nakayama in view of Xu

Claim 18 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Nakayama in view of Xu. This rejection is respectfully traversed.

Claim 18 depends from claim 15, which depends from claim 1, and recites the light emission means comprises an electron transport layer on negative electrode side of said organic electro-luminescence layer.

Even if one of ordinary skill in the art would have found Xu to teach light emission means comprising an electron transport layer on a negative electrode side of the organic electro-luminescence layer, the presently claimed invention still would not have been achieved. Specifically, nothing in Xu remedies the deficiencies of Nakayama discussed above with respect to amended claim 1.

Accordingly, Applicants respectfully submit that Nakayama and Xu, whether taken alone or in combination, would not have led one of ordinary skill in the art to the invention of claim 1 or any of depending claims 2-5 and 7-28. Reconsideration and withdrawal of this rejection are thus respectfully requested.

VI. Allowable Subject Matter

Claims 6 and 7 were objected to as being dependent upon a rejected base claim, but were found to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to overcome the rejection under 35 U.S.C. §112, second paragraph.

To this end, Applicants amend claim 1 to include the subject matter of original claim 6 and to overcome the §112, second paragraph rejection.

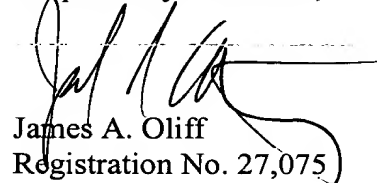
Accordingly, Applicants submit that claim 1, and claims 2-5 and 7-28 depending therefrom, are allowable.

VII. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-5 and 7-29 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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